

**PERFORMANCE MEASUREMENT SYSTEM WITH
FLUORESCENT MARKERS FOR GOLF EQUIPMENT**

CROSS-REFERENCE TO RELATED APPLICATIONS

5 This application is a continuation-in-part application of U.S. Application No.
12/12/04 09/782,278 filed on February 14, 2001, now ^{U.S. patent No. 6,758,759} pending, which is incorporated in its entirety by
reference herein.

FIELD OF THE INVENTION

10 The present invention relates to a monitor system with optical wavelength
discrimination and fluorescent markers. More particularly, the present invention relates to a
system for monitoring kinematics of golf equipment and a method for use thereof.

BACKGROUND OF THE INVENTION

15 Devices for measuring golf ball flight characteristics and club head swing characteristics are
known. For example, the golf ball or golf club head may be marked with at least one
contrasting area, used to generate optical images that may be used to determine performance
characteristics. Some of these devices use retro-reflective tape or paint markers. Retro-
reflective markers, however, result in a raised surface when placed on the golf ball and effect
20 flight performance of the golf ball. It would therefore be desirable to provide a system which
measures the launch or flight characteristics of a golf ball using markers that did not
substantially effect the flight performance of the golf ball. In addition, paint or ink-based
markers and devices are ineffective in bright sunlight and do not provide sufficient optical
discrimination of markers.

25 Devices for measuring two sports objects in a single swing are known,
however, these systems have drawbacks relating to outdoor functionality, portability,
accuracy, and ease of use. Thus, a need exists for a monitor system to capture club motion
data and ball motion data where the system is portable, easy to use, accurate, and adaptable
for outdoor use.

SUMMARY OF THE INVENTION

30 The present invention is directed to a method and apparatus for measuring the
flight characteristics of an object using fluorescent optical markers. In particular, one
embodiment contemplates a monitor system for measuring flight characteristics of an object,
35 such as a golf ball and/or a golf club, with fluorescent markers. The flight characteristics are
derived from data taken when the object is in a predetermined field-of-view. The system